Wiffle Ballistic Campaign

Objective:

A) Students will build a small mobile robot that can shoot wiffle balls at various targets, scoring points for velocity, range and accuracy.

B) Design and maintain a digital copy Engineering Notebook that must be maintained and updated through the challenge.

The Bots:

1. Robots must load/launch wiffle balls.
2. Launchers must be capable of horizontal and vertical movement.
3. There will be stationary and moving targets.
4. Robots must be built from the contents of one basic TETRIX kit and one basic LEGO Mindstorms kit.
5. Students may use a maximum of 5 DC motors
6. Robot must fit in a 18”x18”x18” box.
7. Students MUST submit a detailed and labeled drawing prior to beginning the build.
8. Students may build with additional materials that they supply (cardboard, plastic, etc.)
9. Robots must be programed using a remote control (NO KEYBOARD CONTROLLING).

The Notebooks:

1. Two (2) days a week will be dedicated to notebook/poster maintenance and updates.
2. Team members will add notes, calculations, observations, photographs, etc. to document the design process.
3. Each notebook entry MUST include a detailed description and explanation of the ENGINEERING DESIGN PROCESS\* step being utilized for that entry. (see poster rubric for specifics)

The Points:

1. 100 points for the robot design and build
2. 100 points for the notebook/poster
3. 100 points for the competition (based on a curve of the highest and lowest scores from all intro classes)

\*Here is a good example of a good journal entry:

TEST: After completing our climbing mechanism my team began to run some tests from the bottom of the ramp. For these tests we timed the robots ability to climb the ramp ten times, on average we found that it took 45 seconds for the robot to make it from the bottom of the ramp to the top. Some factors that affected the robots speed is the amount of battery power and the extra weight of the loaded ball. We believe that based on these results we need to be sure to use a fully charged battery for every run.